LIBRARY
MAR 28 1960

United States Department of the Interior, Fred A. Seaton, Secretary
Fish and Wildlife Service, Arnie J. Suomela, Commissioner

Market News Leaflet 15

Washington 25, D. C. February 1960

JAPANESE TRAWLING OPERATIONS IN THE EASTERN BERING SEA 1/

Summary

The Japanese fishing industry carries on large-scale trawling from spring to autumn in the eastern Bering Sea between the Pribilof Islands and Bristol Bay, principally for flatfish and Alaska pollock. In 1959 four mothership fleets caught 28,406 metric tons, mostly of flatfish, in the area; two fishmeal factoryships harvested 128,586 tons of flatfish, Alaska pollock, and cod; and large independent trawlers took about 1,600 tons. Two more fishmeal fleets are expected to join the fishery next year.

* * *

General

There are two major Japanese trawl fisheries in the eastern Bering Sea. One is carried on by salmon factoryships after the close of the high-seas salmon fishing season, and produces primarily frozen flatfish for the domestic market. The other is a specialized factoryship operation for the production of fishmeal, primarily for export to Europe. In addition to these two fisheries, a few large trawlers have operated independently in the area in the past few years to catch and freeze flatfish. Two sketch maps purporting to show the general location of these fisheries are appended.

Mothership-type Frozen Flatfish Production

Beginning in 1954, each year after the close of the high-seas salmon season, from two to four salmon factoryships have gone to the eastern Bering Sea to work as motherships for fleets of 4 to 8 trawlers. Two other salmon factoryships work with similar fleets in the Sea of Okhotsk. The fishing season is from late August to early October. The fishing ground in 1958 was centered in the area of 57°N., 164°30'W. to 166°W., but in 1959 that ground was occupied first by the fishmeal fleets, and the frozen flatfish operations were shifted to the vicinity of 58°N., 168°W.

Issued by Branch of Market News, Division of Industrial Research and Services, Bureau of Commercial Fisheries, U. S. Fish and Wildlife Service.
1/ Information supplied by American Embassy, Tokyo, Japan.

Ministry of Agriculture catch statistics for this Bering Sea fishery total 12,196 metric tons in 1954, 9,915 metric tons in 1955, 24,136 metric tons in 1956, 24,155 metric tons in 1957, 18,428 metric tons in 1958, and 29,728 metric tons in 1959. The catch is almost entirely flatfish, which are frozen aboard the mothership. Available official statistics on the catch and production of this fishery are given in the appended table.

Some details on the 1959 fishing follow:

Chiyo Maru (7,195 gross tons), operated by the Taiyo Fishing Company, employed four 370-ton otter trawlers, the Nos. 31, 32, 33 and 35 Taiyo Maru, and produced 6,250 tons of frozen fish.

Miyajima Maru (9,599 gross tons) and Kashima Maru (7,163 gross tons), operated by the Nippon Suisan Company, shared a fleet of eight trawlers: Tone Maru (535 gross tons), Yamashiro Maru (349 gross tons), Kashii Maru (362 gross tons), Miyazaki Maru (362 gross tons), Yamato Maru (291 gross tons), Kawachi Maru (300 gross tons), Omi Maru (291 gross tons), and Hyuga Maru (tonnage unknown). The Miyajima Maru produced 5,407 metric tons and the Kashima Maru 5,126 metric tons of frozen fish.

Kyokuzan Maru (10,913 gross tons), operated by the Kyokuyo Whaling Company, employed six trawlers, including the 291-ton No. 1 and No. 2 Daishin Maru, and produced 4,452 metric tons of frozen flatfish.

These Bering Sea fleets all sailed for the fishing grounds between August 15 and 20, and returned to Japan between October 3 and 13. They apparently all fished close together on the same ground.

The catcher boats employed in this fishery are all conventional otter trawlers. In the Sea of Okhotsk, on the other hand, small pair trawlers are used.

This fishery made little if any money before 1958, and was regarded only as a way of using the salmon factoryships during an off-season period. Public acceptance of frozen flatfish in Japan is apparently improving, however, and in 1958 the operations were reported to have shown a profit. Some apprehension was felt that the large increase in production planned for 1959 might send prices downward, but recent reports are that demand and prices are good. Prices as of the end of October were reported to be 400 to 500 yen per box of 15 kg., depending on the size of the fish, with a premium of about 50 yen per box for large dressed fish. At this rate, the over-all value of the 1959 production by the four flatfish fleets would appear to be close to $2,000,000.

Although the catch is, as noted above, described in Government statistics only as "flatfish", market news reports refer principally to the koganegarei ("golden flounder"), which probably includes both Limanda aspera and Platessa quadrituberculatus, and the rock sole, asabagarei, Lepidopsetta mochigarei.

If demand for frozen flatfish in Japan continues good, it appears likely that this fishery will continue to operate on the present scale during the next few years. There are no signs of intentions to increase the scale of the fishery. There are some indications of uneasiness about the future of the resource, however, because of the large quantities of fish which the newly developed fishmeal factoryship fishery is taking in the same general area, the fleet of between 30 and 40 Soviet trawlers which appeared on the fishing grounds this year, and a reported decline in the size of the flatfish in the catch.

Fishmeal Factoryship Operations

Before the war two Japanese floating fishmeal plants, the Kasado Maru and the Daihoku Maru, worked in the Bering Sea from 1933 to 1937. A revival of this fishery was made possible by a revision of the Mothership Fisheries Control Act in June 1958, and in the same month the first postwar Japanese fishmeal factoryship, the Kinyo Maru, sailed for the banks at the mouth of Bristol Bay. In 1959 a second factoryship joined the fishery, it appears certain that there will be at least four such ships working in the summer of 1960, and it seems quite possible that the number may become even greater.

In 1958, on June 8, the Kinyo Maru (9,191 gross tons), belonging to the Hokuyo Fisheries Company, sailed for the trawling banks of the eastern Bering Sea. The vessel had been equipped with a two-line continuous-process fishmeal plant manufactured by the Atlas Company of Denmark. The plant was rated as able to handle 500-600 tons of raw fish a day with a recovery rate of 20 percent for a production of about 100 tons of high-grade white fishmeal per day. The Kinyo Maru was preceded by her fleet of fishing boats, which sailed from Hakodate on June 5. This fleet comprised 16 pair trawlers of 94 to 134 gross tons, operating 8 trawls, and 4 single trawlers of 51 to 67 gross tons, which used gear similar to a Danish seine. The Kinyo Maru fleet employed 500 men--64 mothership crew members, 20 clerical workers, 123 meal plant workers, and 293 fishermen.

The Kinyo Maru began taking fish from her trawlers on June 20 at 56°30'N., 165°15'W., a proven ground which had been fished by flatfish freezers in previous years. Fishing was carried on for the most part in the area between 56°30'N. and 57°10'N., 164°30'E., and 166°30'E. Other areas were explored, but although flatfish were found everywhere, no other ground produced good hauls of the Alaska pollock which the Kinyo Maru was seeking.

Fishing continued until October 8, with the trawlers making a total of 60-100 hauls a day, producing from 200 to slightly less than 500 tons of fish. The pair trawlers generally hauled their nets for about 30 minutes, taking from 3 to 5 tons of fish, then detached the full codend of the trawl and had it towed to the factoryship on a line carried over by a motor launch. Composition of the catches ran 40 to 60 percent Alaska pollock, 10 percent cod, and the rest flatfish until mid-August, after which the percentage of flatfish rose to 80 to 90 percent. The small single-operating trawlers were used as scouting boats, and constant efforts were made to find concentrations of Alaska pollock, which, because of their high protein yield, made the best fishmeal. In early August the Kinyo Maru was reported to be making 60 to 75 metric tons of meal, 5 to 6 tons of fish body oil, and 1.5 tons of liver oil from a daily catch of 300 to 400 tons of fish. Ministry of Agriculture figures on the catch of this operation total 28,406 metric tons, comprising 21,356 tons of flatfish, 5,354 tons of Alaska pollock, and 1,697 tons of cod. From this was made 4,676 tons of fishmeal, 264 kiloliters of fish body oil, 43 kiloliters of fish liver oil, and 149 tons of salt cod. Most of the Kinyo Maru's fishmeal was exported to West Germany, reportedly at a price of about $200 a ton CIF.

Although the Kinyo Maru failed to produce even half of her 10,000-ton target in 1958, most of the other large fishing companies soon began to announce plans for outfitting similar fishmeal factoryships. The Japanese Fisheries Agency took a cautious attitude toward applications for licenses to enter this fishery for several reasons. Little was known of the size of the resource and therefore of how much fishing it would support. The machinery of the type installed aboard the Kinyo Maru represented a considerable outlay of foreign exchange, and it seemed unwise to allow the industry to outfit a number of expensive factoryships, only to have the resources fail through over-exploitation and leave the ships without employment. It is figured that a steady catch of about 600 tons of fish a day is necessary to insure fully efficient operation of a large fishmeal factoryship, and extensive exploration in the Bering Sea has indicated that grounds which can produce so abundantly are quite limited in area. There was also thought to be some possibility that over-expansion of this fishery might have adverse effects on the frozen flatfish mothership fishery and on the Japanese kingcrab fishery in the same general area of the eastern Bering Sea. Apprehension was also felt that a too rapid expansion might bring the Soviet Union and the United States into the situation with demands for restrictions on Bering Sea trawling similar to those which are now applied to the Japanese high-seas salmon fishery. Finally, it was felt that the operators of the Kinyo Maru deserved, as a reward for their pioneering, at least another year of freedom from excessive competition in the fishery.

In 1959, therefore, only one additional factoryship was licensed, the 11,582-ton Tenyo Maru, operated jointly by the Hokuyo Fisheries Company and the Taiyo Fishing Company. This mothership used 20 pair trawlers and 2 single trawlers. Personnel of the fleet totaled 594, of which 234 were fishmeal plant workers and 270 trawler fishermen, extra to the regular crew of the Tenyo Maru.

In 1959 the Kinyo Maru added two boats to her fishing fleet, taking 12 pair trawlers and 10 single trawlers. She was provided with more open deck space, sufficient to accommodate an accumulation of 500 to 550 tons of fish; the number of her meal plant workers was increased to 162; and she was provided with a freezership, the 1,120-ton Chikuzen Maru, to process fish judged too valuable for making into fish meal.

The Kinyo Maru fleet was on the grounds from April 27 to October 12, the Tenyo Maru fleet from July 3 to October 17. They fished principally in the area of 55°50'N. to 57°45'N., 163°50'W. to 166°30'W., and as in 1958, reconnaissance revealed no other areas which produced catches large enough to support the needs of the meal plants. As in 1958, Alaska pollock made up a fair 60 to 80 percent of the catches in spring and early summer, but the percentage of flatfish rose from August on. Cod continued to make up less than 10 percent of the catch. It was noted that the proportion of small flatfish in the catch was higher than in 1958, but the average size of the pollock held steady and that of the cod was noticeably larger. Both ships produced fish meal, solubles, fish oil, liver oil, and frozen and salted fish.

The Tenyo Maru fleet's catch is given in a semi-official source as 47,489 metric tons, comprising 38,705 tons of flatfishes, 8,223 tons of Alaska pollock, 320 tons of cod, and 231 tons of other species. If accurate, these figures reflect a high efficiency, in view of the short period of time the fleet was on the grounds. Production is reported as 6,880 tons of meal, 1,141 tons of solubles, 2,066 tons of frozen fish, 32 tons of salted fish, 150 kiloliters of fish body oil, and 11 kiloliters of liver oil. The Kinyo Maru's 1959 catch and production have not been reported in detail, however, summary data recently supplied by the Japanese Fisheries Agency (see appended table) indicates a catch of about 80,000 tons.

The trawlers' catches are sorted on the factoryship deck into Alaska pollock, true cod, golden flounder (Limanda aspera and Platessa quadrituberculatus), rock flounder (Lepidopsetts bilineata), yellow sole (Pleuronectes tallassi), arrow-toothed flounder (Atheresthes stomias), rock cod, cottids, rays, halibut, king crab, red crab, and tsubu (gastropods of the genera Nettunea and Buccinum). The Alaska pollock, most of the flatfish, and small cod go into the meal plant. Large cod are salted or frozen. By regulation, halibut are not to be kept and are reportedly all thrown back into the sea. In 1958 the same was required for king crab, but in 1959 this requirement was canceled on the understanding that the incidental capture of king crab was to be avoided as much as possible. The tsubu snails were found to be palatable, and some were frozen as an experiment.

Japanese Fisheries Agency inspectors have collected some biological data on the catches of the fish meal fleets, as well as of the frozen flatfish fleets, but the Agency has no organized program for study of eastern Bering Sea bottom-fish resources, nor any plans for publishing these data.

Two additional fish meal factoryships are being outfitted for next season. One is the 18,000-ton tanker, Nissho Maru, now renamed the Renshin Maru. It will be operated by the Hokuyo Fisheries Company, and will have 22 percent greater production capacity than the company's Kinyo Maru. The other is the 12,300-ton Soyo Maru, now being built by the Taiyo Fishing Company. This will be the first Japanese ship built expressly for fish meal production; it will have a speed of 17 knots, an over-all length of 143 meters, and will be capable of processing 600 tons of fish per day. There is also a report that another large fishing company, Nippon Suisan, is laying plans to apply for a license to operate a 9,970-ton ship as a fish meal factoryship. Since the Bering Sea fish meal fishery is considered the most likely opening for re-employment of salmon fishermen and their boats after the projected reduction of the high-seas salmon fleets, it appears likely that the number of fish meal fleets working the Bering Sea next summer will be greater than four.

Other Bering Sea Trawling

In some recent years a few large otter trawlers have fished independently in the eastern Bering Sea for the production of frozen flatfish. Government statistics give the catch from this trawling as 2,292 metric tons in 1955 and 1,234 tons in 1956. No fishing was recorded for 1957 and 1958, but in 1959 the Taiyo Fishing Company's 1,489-ton stern trawler No. 51 Taiyo Maru produc about 1,000 metric tons of frozen flatfish and the Nippon Suisan Company's 993-ton Asama Maru produced 612 tons. These two vessels worked the same area as the fish meal factoryship fleets, and both left the grounds early in June.

TABLE

Unpublished Data on 1959 Bering Sea Fleet Trawling, with 1958 Comparisons

(Figures supplied by Japanese Fisheries Agency)

In metric tons

Frozen Flatfish Mothership Fishery

Year	Total Catch	Production			
		Frozen Fish	Fish meal	Salted Fish	Fish Oil
1958	18,428 1/	11,887	57	12	11 kl.
1959	29,728	20,999	148	2	13 kl.

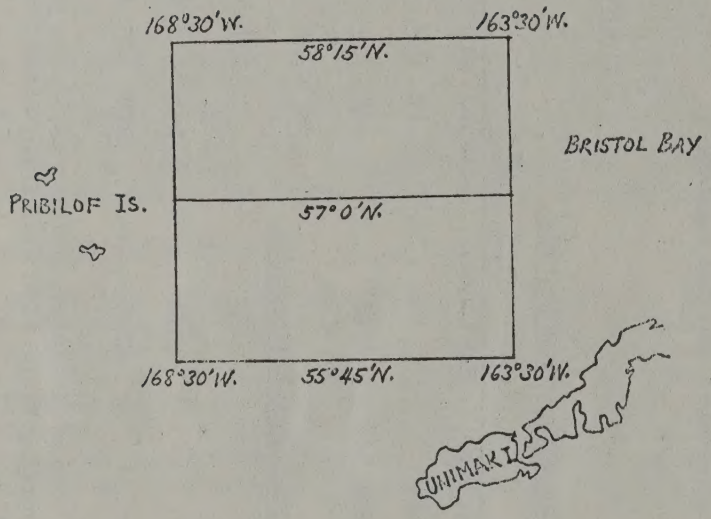
Fish meal Factoryship Operation

					Liver Oil		Solubles
1958	28,406 2/	--	4,676	149	263 kl.	0 3/	639
1959	128,586	--	19,390	228	443 kl.	86 kl.	2,699

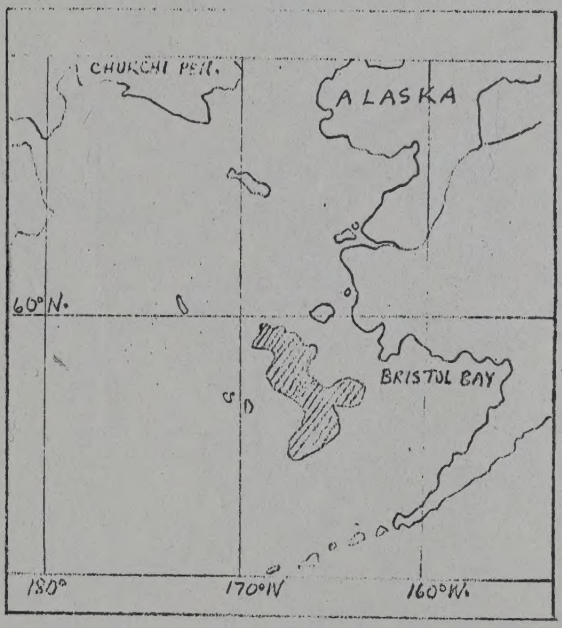
Notes: 1/ This catch comprised 18,286 metric tons of flatfishes, 109 tons of Alaska pollock, 30 tons of cod, and 2 tons of other species, according to the 1958 Annual Report of Catch Statistics, Ministry of Agriculture and Forestry.

2/ This catch comprised 21,355 metric tons of flatfishes, 5,353 tons of Alaska pollock, and 1,696 tons of cod, according to the same source.

3/ This is in disagreement with the figure on page 4, which is based on an article by a responsible Japanese Fisheries Agency official in the October 1959 Suisankai. There are several other unexplained minor discrepancies between the figures from these two sources.



Sketch map showing general location of Japanese trawling grounds in eastern Bering Sea. From Kazurajo, Tadao (1959), Bosen-shiki kosen gyogyo [Mothership-type Factoryship Fisheries], p. 176.



Location of the grounds fished by Japanese fishmeal fleets (diagonally lined area), according to Suisan Keizai Shimbun, August 21, 1959

69922

BUREAU OF COMMERCIAL
FISHERIES

MAR 23 9 29 AM '60

HAWAII AREA
HONOLULU